Fossil Discoveries in Classical Antiquity

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FOSSIL DISCOVERIES IN CLASSICAL ANTIQUITY

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When most people think of classical Greece, they think of gods and goddesses, beautiful temples, and marble ruins. The huge fossil bones of mastodons and mammoths are not likely to appear in anyone's mental picture of classical antiquity. And yet, for the ancient Greeks themselves, the vestiges of mysterious, giant creatures of the remote past were an important feature of their natural and cultural landscape.

Millions of years before the first humans appeared in Greece, the Mediterranean basin was not a sea, but a vast plain connecting Europe, Africa, and Asia. From the Miocene and Pliocene epochs (23 to 1.7 million years ago) through the Pleistocene and until the end of the last Ice Age (about 1.7 million to 10,000 years ago), that land was populated by a great variety of prehistoric elephants and other immense animals. Giant giraffes and rhinoceroses, ostriches, sabertooth tigers, cave bears, mastodons, mammoths—all these creatures once populated the Mediterranean basin. Under certain circumstances, their bones were turned to stone. Ever since then, their fossil remains weather out of bone beds all around the Mediterranean Sea (see Mayor 2000a, Appendix 1, for a listing of the large vertebrate fossil species whose remains are exposed in Greco-Roman lands).

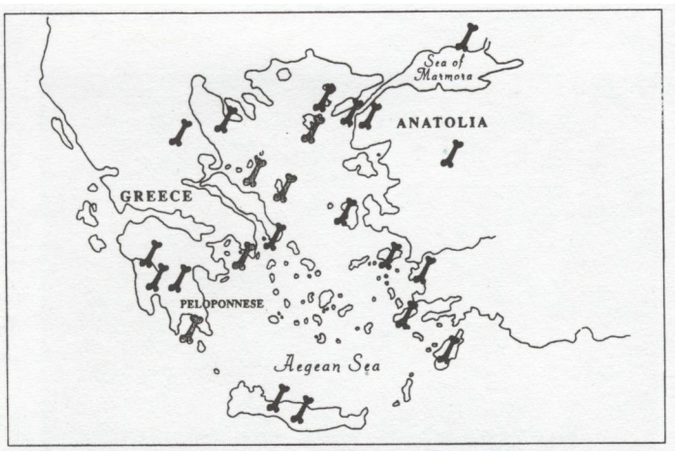

Figure 1. Giant bones observed around the Aegean in antiquity, confirmed by modern paleontological finds. ©Michele Angel

These rich fossil deposits in Greece, the Aegean islands, and Asia Minor only became known to modern science about 150 years ago. Even today, the fossils of the Mediterranean region are little-known except to a handful of paleontologists. The scientists who study the fossils never realized that such bones were relics of great interest to the ancient Greeks. And since most classicists are unaware that enormous skeletons continually erode out of the earth and would have been observed by early Greeks, it is not really surprising that ancient descriptions of the "bones of giants" have been viewed as fiction or superstition. After all, some of the most respected ancient authorities, Thucydides and Aristotle, never mentioned discoveries of giant bones. But their silence should not mislead us into thinking that the Greeks took no notice of large fossil remains (on the silence of natural philosophers, see Mayor 2000a, chapter 5).

As a classical folklorist interested in legends about natural history, I have gathered literary and archaeological evidence to show that observations of vertebrate fossils influenced early myths and later legends about strange creatures of the deep past. Nearly 100 ancient accounts from more than 30 Greek and Latin authors, from Herodotus in the fifth century BC to Saint Augustine in the fifth century AD, describe the excitement and speculation that occurred whenever surprisingly large bones were revealed by erosion, earthquakes, or human activities like plowing. The writers tell us that people collected, measured, and displayed remarkable remains in temples as relics of the glorious past. Archaeological evidence of ancient fossil collecting is rare (skeletal remains were routinely discarded until the advent of zooarchaeology in the 1970s), but a few fossil relics collected in antiquity have been recognized in ancient sites.

Not all of the Mediterranean sediments contain fossils, of course. Much of the land is marble and other barren rock (Higgins and Higgins 1996). But, as it turns out, Miocene and Pleistocene bone beds exist in the very same places where the ancient myths said that giants were buried in the earth (figure 1).

According to classical sources, the giants and monsters lived at a time when mountains were still being formed. It was believed that these creatures were all destroyed in the remote past, in earth-shaking battles with the gods and heroes. In the ancient imagination, the great heroes and heroines of myth were giants—they would have towered over the puny men and women of today. Did observations of immense bones of mastodons and mammoths lead to the picture of giants and heroes striding across the landscape? It seems likely, since the thigh bones and shoulderblades of extinct elephants and other large mammals do resemble gigantic counterparts of human anatomy (see figure 2; on anthropomorphizing tendencies, see Mayor 2000a, 77–82 and refs.).

This article is based on materials in Mayor 2000a and b, and portions have appeared in a paper delivered to the Paleontological Research Institution, Ithaca, New York, 1 April 2000, and in A. Mayor, "A Time of Giants and Monsters," *Archaeology* 53 (March-April 2000): 58–61.

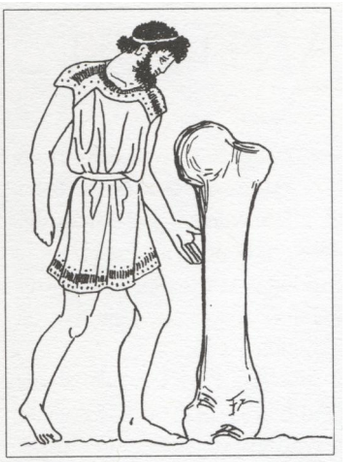

Figure 2. Average man in ancient Greece (ca. 5 feet tall) next to mammoth femur. ©Adrienne Mayor

In the time when the myths of giants and monsters first arose, the largest land animal known to the Greeks was the horse. Although Herodotus was the first to mention elephants, the Greeks did not really become familiar with elephants until the fourth century BC, after Alexander the Great's campaigns in India. Moreover, the Aegean is a "crunch zone" of colliding continental plates. During the Miocene and Pleistocene, tectonic and volcanic forces created the present-day landforms of the Mediterranean—a region that is still subject to severe earthquakes as the continental plates of Africa and Asia collide. Seismic upheavals warp the land and break up fossil skeletons, jumbling the bones. The skulls of proboscideans are especially fragile. They often disintegrate away, leaving only the most durable and familiar-looking bones—oversized femurs and scapulas—for the Greeks to ponder (figure 3).

Figure 3. Mammoth femur (left) and human femur (right). Photo courtesy of Ana Pinto.

Imagine you are a Greek farmer plowing your field, around the time of Homer, in the eighth century BC. Suddenly you find some impossibly huge bones sticking out of the ground. You notice the thigh bone and compare it to yourself. You may have found a mammoth skeleton (figure 4).

But if you lived in the time of Homer, you would know nothing of elephants. Gazing at that enormous leg bone, you might visualize a strange, two-legged giant, maybe something like that depicted in figure 5.

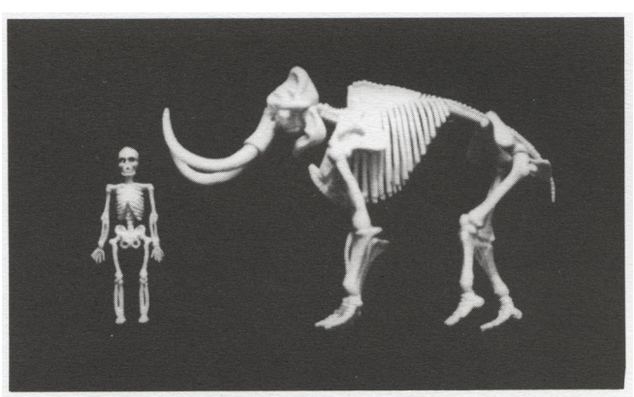

Figure 4. Human and mammoth models. ©Adrienne Mayor

THE ANCIENT BONE RUSH

The accounts collected here are some of the *earliest* descriptions of large vertebrate fossil finds in the world. By paying attention to the details of the stories and looking at them now in the light of modern paleontology, we can recover the lost world of ancient fossil hunting.

Bones of Orestes

In about 430 BC, Herodotus wrote down the earliest description—and the first recorded measurement—of what must have been a fossil animal skeleton (Herodotus 1.67–68; cf. Pausanias 3.3.6–7). In about 560 BC, the Oracle at Delphi, in a cryptic verse about a forge, advised the Spartans that victory over their rival Tegea depended on bringing the bones of the mythical hero Orestes to Sparta. One day a Spartan soldier was talking with a smith working his forge in Tegea. The smith confided that when he was digging a well in his courtyard, he had unearthed a huge skeleton. "Men in the past were much bigger than today," he said. "I measured the skeleton and it was 7 cubits long! Then, I shoveled the dirt back over the bones" (a cubit=17 inches, so the skeleton seemed about 10 feet long). Recalling the Oracle about the forge and Orestes' bones, the Spartan soldier rented a room from the smith. He secretly dug up the big bones and absconded with them to Sparta. The Spartans immediately announced the recovery of the great bones of Orestes and buried them in a fine tomb with great honors. Once Sparta had obtained these sacred relics, says Herodotus, their power in southern Greece began to grow.

What kind of bones did the smith really dig up? Tegea lies in a Pleistocene lake basin, whose sediments contain the remains of mammoths and other megafauna of the Ice Age. Similar deposits occur in other valleys of Arcadia in southern Greece, with especially rich deposits along the Alpheios River near Olympia and around Megalopolis. Villagers who live in these areas today still come across giant bones, enormous molars, and tusks. In 1994, for example, road builders near the ancient site of Olympia found a pair of tusks 10 feet long. The tusks were straight, so they probably belonged to the 13-foot-tall ancestral elephant of the Pleistocene, *Palaeoloxodon* or *Elephas antiquus*, whose remains are common in Arcadia. The largest pair of fossil tusks ever

found in Greece came to light in 1997 (excavated by Dr. Evangelia Tsoukala of Aristotle University). They are 14 feet long and belonged to a Miocene mastodon, *Zygolophodon borsoni*. Modern finds like these shed new light on ancient Greek tales about supersized animals. Consider the legend of the terrible Calydonian Boar.

The Calydonian Boar

According to myth, the angry goddess of the hunt, Artemis, sent a gigantic wild boar to ravage the land. The boar was finally slain by a party of heroes led by Meleager. Pausanias tells us that the magnificent tusks of the Calydonian Boar were shown in a temple in Tegea, until 31 BC, when the future emperor Augustus plundered the trophy ivories for his own display in Rome. When Pausanias visited the Emperor's Gardens to view the famous tusks, he learned that one had crumbled away, but he estimated that the surviving tusk was about 3 feet long (8.46.1, 5). Several centuries later, the Greek historian Procopius (*De Bello Gothico* 5.15.8) described a bigger pair of tusks labeled "Calydonian Boar" in Beneventum. He said they were three handspans around and curved into a crescent shape. His details suggest that the tusks at Beneventum were those of a Pleistocene woolly mammoth, whose tusks have a distinctive curvature. The shorter tusks shown at Tegea and Rome probably came from an ancestral elephant buried in Arcadian bone beds. When ancient people who had never seen an elephant found enormous tusks in the ground, it was logical for them to imagine that they came from a gigantic boar, the only tusked animal they knew.

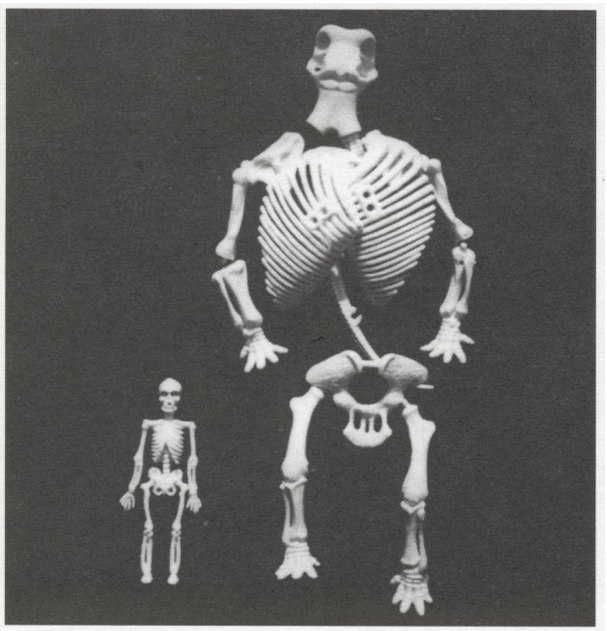

Figure 5. Human skeleton and mammoth skeleton rearranged to resemble giant of Greek myth. ©Adrienne Mayor

Relics of Heroes and Giants

The Spartan discovery of Orestes' bones at Tegea spurred a panhellenic bone rush. Now other Greek cities began to deliberately seek out impressive bones that they could identify as their own giant heroes from myth. For example, Kimon searched for the remains of the Athenian hero Theseus on the island of Skyros, where legend said he had been murdered. Sure enough, in 476 BC, Kimon found some suitably large bones eroding out of a mound there. He shipped the big bones to Athens where they received a hero's welcome (Pausanias 1.17.6; Plutarch *Kimon* 8). The bones of Theseus may have come from Miocene sediments on Skyros, which typically hold the remains of mastodons, rhinos, and giant giraffes.

At Olympia, the enormous "ivory" shoulderblade of the hero Pelops, the legendary founder of the Olympic Games, was kept in a special shrine. As we now know, the riverbanks and ravines around Olympia contain Pleistocene fossils of great magnitude. The shoulderblade of Pelops may have been a mammoth scapula from *Mammuthus primigenius* or *meridionalis*. Old bone, especially if polished, can resemble ivory. A mammoth scapula measures about 2 feet by 3 feet, many times the size of a human shoulderblade, and can weigh over 100 pounds.

According to Pausanias (5.13.1–7), this celebrated bone of Pelops played a part in winning the legendary Trojan War. Near the end of the war, a Trojan seer declared that the Greeks would never see victory until they brought Pelops' shoulderblade to Troy. So, the unwieldy relic was trundled from Olympia and loaded on a ship. The heavy bone would have been packed in straw and placed in the hold where it could serve as ballast. After weeks at sea, Pelops' bone arrived safely in the Greek camp at Troy and witnessed the defeat of the Trojans. After the victory, Pausanias says the bone was bundled again into one of the ships returning to Greece. But, rounding the treacherous waters off Euboea, a storm wrecked the ship, and the precious cargo was lost at sea. If the Trojan War really took place, that ship went down sometime in the thirteenth century BC.

Centuries passed. Then one day a Euboean fisherman named Damarmenos hauled in his net and was astounded to find that he had caught a gigantic shoulderblade. He buried the bone in the sand and told no one. But over the years the secret nagged at him. Finally, he traveled to Delphi to ask the Oracle what he should do about the bone. By coincidence, ambassadors from Olympia were in town, begging the Oracle to stop a plague. Knowing the old history of Pelops' bone and its loss at sea, the Oracle declared that only the return of the lost relic could end the plague. The Oracle commanded Damarmenos to dig up the bone he had buried years earlier. The ambassadors arranged to transport the big bone from Euboea to Olympia. And the fisherman and his descendants became the keepers of Pelops' restored shoulderbone.

It is highly unlikely that the fisherman caught the original, long-lost Pelops bone, of course. But Euboea was once part of the Miocene land mass. The shallow waters

there cover sunken grabens of Miocene sediments, which do contain the huge remains of mastodons, *Chalicotheriums* (a bizarre herbivore with claws), and rhinoceroses. It's not unusual for fishing nets to bring up prehistoric bones in fossiliferous sea beds: it happens every day in the English Channel.

At Olympia, archaeologists have discovered the ruins of a temple dedicated to the hero Pelops, constructed on top of a much earlier Bronze Age shrine, perhaps the original temple for the Pleistocene bone that went to Troy. The new temple was built sometime in the seventh century BC, suggesting that the Euboean fisherman found his Miocene bone sometime then. Many centuries later, in about AD 150, Pausanias traveled to Olympia, hoping to pay his respects to the venerable bone of Pelops. He found that seventh-century temple, but it was all overgrown with vines. And the priests informed him that the great bone had crumbled to dust. Pausanias was disappointed, but not surprised. After all, he wrote, just think of its extreme age, its arduous travels, and centuries under the sea. Little did Pausanias know that the replacement Pelops bone fished up in Euboea was many *millions* of years *older* than the Pleistocene bone that went to Troy in the Bronze Age.

Pausanias was a native of Asia Minor, and he recorded numerous eyewitness accounts of giant bone finds there. In each case the remarkable remains were exposed by rainstorms, floods, earthquake, erosion by the sea, or by human digging. At Miletus, for example, a chunk of an island in the harbor suddenly broke away, revealing the bones of a 15-foot giant (1.35.5–6). The people revered it as the remains of the giant Asterios, son of the town's legendary founder Anax, a "son of the earth." The dimensions and location, on the coast where Miocene fossils continually erode out of the ground, suggest to us that the real identity of the giant was a mastodon.

When workers diverted the Orontes River in Syria (probably a project of the emperor Tiberius), they came upon a vast skeleton in the clay of the dry river bed. Pausanias says the giant was 11 cubits, over 15 feet long (8.29.3–4). The Ionian Oracle of Apollo at Claros declared that it was Orontes, a mythical giant-hero of India, although some people disagreed, saying it was Aryades, an African giant. Modern fossil finds along the Orontes River allow us to guess that the giant was most likely a tremendous steppe mammoth, *Mammuthus trogontherii*, common remains in that valley. If so, then Pausanias' figure of 11 cubits is not far off: these behemoths stood 14 feet tall at the shoulder.

In Lydia, Pausanias saw yet another massive skeleton, exposed by heavy rains that broke open the ground along the river Hyllos (1.35.6). "You would think the bones were human by their form," exclaimed Pausanias. "But their size was incredible!" The locals identified the body as that of Geryon, the monstrous giant slain by Heracles in his Tenth Labor. Geryon had raised prodigious oxen. "Everyone knew someone who had plowed up horns in the area, which must have been the remnants of Geryon's fabulous herd," noted Pausanias. We now know that Lydia has Miocene fossil beds, with the remains of mastodons, rhinoceroses, giant oxen, and giant giraffes.

Pausanias also investigated two spectacular discoveries near Troy, along the Dardanelles. During the bone rush started by Sparta, the city of Thebes had sent a delegation to Troy to find the bones of the great Trojan warrior Hector (Pausanias 9.18.4). When Heinrich Schliemann excavated ancient Troy in 1870–80, he discovered a large fossil (later identified as the vertebra of a Miocene marine mammal) that had been carried to the city in the Bronze Age, in the time of the Trojan War (Mayor 2000a, 179–80). His find implies that the concept of numinous bone relics was indeed familiar to the early Trojans, as the story of the Trojan seer and Pelops' bone (above) suggested.

In fact, the Troad is an alluvial plain where very large fossils of both the Miocene and Pleistocene constantly weather out of the hills and along the unstable coast. In the early second century AD, a buzz of excitement surrounded the discovery of the bones of the great Greek champion Ajax. The sea had washed out the beach exactly where Homer's *Iliad* said Ajax was buried. People from miles around came to see the enormous bones of the superhero, including the emperor Hadrian. The emperor gathered up the bones of Ajax and reburied them in a fine tomb at Troy, according to Philostratus (writing a few decades after Pausanias; see *On Heroes* 7.9).

But *who* was really buried in Ajax's tomb? Pausanias (1.35.3) gives us an important clue. A witness told him that the hero's knee caps were as big as a "boy's discus in the pentathlon." It is interesting that his informant strove for accuracy, avoiding exaggeration, by specifying a *boy's* discus, and not, say, a warrior's shield. Archaeologists have found discuses used by men: they measure 6.5–9 inches across. They estimate the diameter of a boy's discus at about 5 inches across, the size of a compact disk. I think it's safe to say that Hadrian buried the bones of a mastodon or mammoth in Ajax's tomb at Troy, since their kneecaps can measure nearly 5 inches.

Another public sensation occurred a few decades later. This time, sailors in the Dardanelles noticed a gigantic skeleton poking out of a promontory. An oracle hinted that it was the great hero Achilles. Throngs of curious people, from nearby islands and further down the coast of Ionia, sailed to get a good view of the exposure. The bones were only visible for 60 days, before they crashed into the sea. This story from Philostratus (*On Heroes* 8.3–14) is a realistic account of a large fossil assemblage eroding out of an unstable cliff by the sea.

Here is another of Philostratus' descriptions, this time from his native island of Lemnos (8.8). After an earthquake on the island, people found a colossal skeleton. "The backbone was in pieces, and the ribs were wrenched away from the vertebrae. As I examined the entire skeleton and the individual bones," wrote a witness, "I got an impression of terrifying size, impossible to describe." In this case the skull had survived the earthquake, and the people measured the volume of the cranium. They estimated that it held more

than two Cretan amphoras. According to archaeologists, a standard Cretan amphora held about 20–24 liters. That means the skull capacity was about 40–50 liters. This ancient estimate is not out of line for an extinct elephant's skull (Mayor 2000a, 118–19).

In another incident related by Philostratus (8.8), a farmer and his son were digging vines on Ikos (modern Alonnisos), an island off Euboea. They uncovered a gigantic skeleton that they guessed was nearly 18 feet long. Now, a scattered skeleton in the ground always looks longer than the animal was in real life, but the figure may be only slightly inflated. It is possible the farmers found a massive *Dinotherium*, a bizarre elephant ancestor that towered over 15 feet at the shoulder. The farmers consulted an oracle and learned that the skeleton belonged to a terrible giant that had been destroyed in the Gigantomachy, the great mythical wars between the giants and the gods.

Battlefields of the Giants

Two places in Greece had such extensive deposits of huge bones that they were known as battlefields where Zeus and the other gods had slain multitudes of giants. The area around Megalopolis was one of these famous battlegrounds of the Gigantomachy (Pausanias 8.29.1, 8.32.5). Pallene (Kassandra Peninsula, Chalkidiki) claimed to be the giants' headquarters. Solinus (9.6) wrote that "before there were any humans on Pallene, a battle was fought between the gods and giants. Traces of the giants' destruction continue to be seen today, whenever torrents flood. They say that in the gullies people find bones of immeasurable enormity."

These places contained dense concentrations of enormous, dark-colored bones, thought to be the bodies of fallen giants, zapped by Zeus's lightning. But there was something else even more eerie. The ground there was still smouldering!

That vivid detail has a natural explanation. Early in the twentieth century, paleontologists at Megalopolis discovered a great variety of Ice Age mammal fossils buried in *lignite*. The lignite stains the bones, giving them a burnt look. And lignite is a kind of soft coal—it is highly combustible and, once ignited, it can burn and smoke for many years (similar deposits exist at Pallene, which was also known as Phlegra, "Burning Fields"). These natural facts—the presence of large fossils in burning soil—led to the ancient idea of smouldering battlefields where the god's lightning had once destroyed armies of giants.

ARCHAEOLOGICAL EVIDENCE FOR ANCIENT FOSSIL COLLECTING

Pausanias and many other writers tell us that the Greeks and Romans gathered up the bones of giants and heroes and displayed them in temples or buried them in fine tombs. That brings up an interesting question. Would any of those giant bones, collected in antiquity, ever turn up in an archaeological dig? As Pausanias found out when he looked for the Pelops bone and the Calydonian tusks, fossils are fragile things. And yet, Heinrich Schliemann found a fossil relic at ancient Troy in 1870. Despite the cavalier treatment of bones in archaeological digs over the century since Schliemann's find, I discovered that a few fossil relics have been excavated from sites around the ancient world. But no one has paid much attention to the meaning of such finds (Mayor 2000a, 167–69).

In the early 1970s, archaeologists from the University of Minnesota excavated part of a very large fossil femur buried on the ancient acropolis at Nichoria, in southern Greece. The bone was probably complete when it was placed on the acropolis in antiquity, and the dark color indicates that it came from the lignite bone beds at Megalopolis, some miles north of Nichoria. But the relic was never positively identified by a paleontologist familiar with Mediterranean fossils. In 1998, I arranged for the Greek paleontologist Nikos Solounias to examine the Nichoria relic. From the size and morphology, he determined that the bone probably belonged to a woolly rhinoceros (Mayor 2000a, 184–90). The great beast's bones were transformed to stone some time in the Pleistocene era. Perhaps a million years later, the Greeks carried it from the dark battleground of the giants at Megalopolis to their sunny acropolis as a relic of the golden age of myth.

About 10 years after the Nichoria find, German archaeologists discovered a similar large fossil femur in the Heraion on Samos, among temple dedications dating to the seventh century BC. That find confirms ancient writers' statements that immense bones were displayed on Samos in antiquity, and today the island is renowned among paleontologists for its extremely prolific Miocene bone beds (Mayor 2000a, 54–60, 180–83).

THE MONSTER OF TROY

The finds at Nichoria and Samos raise yet another intriguing question. If actual fossils collected in antiquity still survive in ancient sites, what about Greek artifacts? Did any ancient artist ever illustrate the discovery of a giant bone? Skeletons are extremely rare in Greek art, so I had little hope of ever finding a fossil on a Greek vase. But then, one day, I noticed a strange creature lurking in a glass case of the Museum of Fine Arts in Boston (Mayor 2000b).

The creature was on a Corinthian vase (560–550 BC) (figure 6), well known as the oldest illustration of the story of the Monster of Troy, described in Homer's *Iliad*. But the figure of the monster itself has long puzzled art historians, because it just doesn't fit the typical image of monsters in Greek art. In the legend, a terrible monster suddenly appeared on the coast of Troy, after a flood. The king of Troy sent his daughter Hesione as a sacrifice, but the hero Heracles arrived just in time to kill the beast. The vase painting shows Hesione and Heracles confronting the Monster of Troy. She is throwing rocks from a pile at her feet while Heracles stands behind her shooting arrows. Two black rocks have hit the monster's head: there is one just under the eye and another one lodged in its mouth. And one of Heracles' arrows is stuck in its chin.

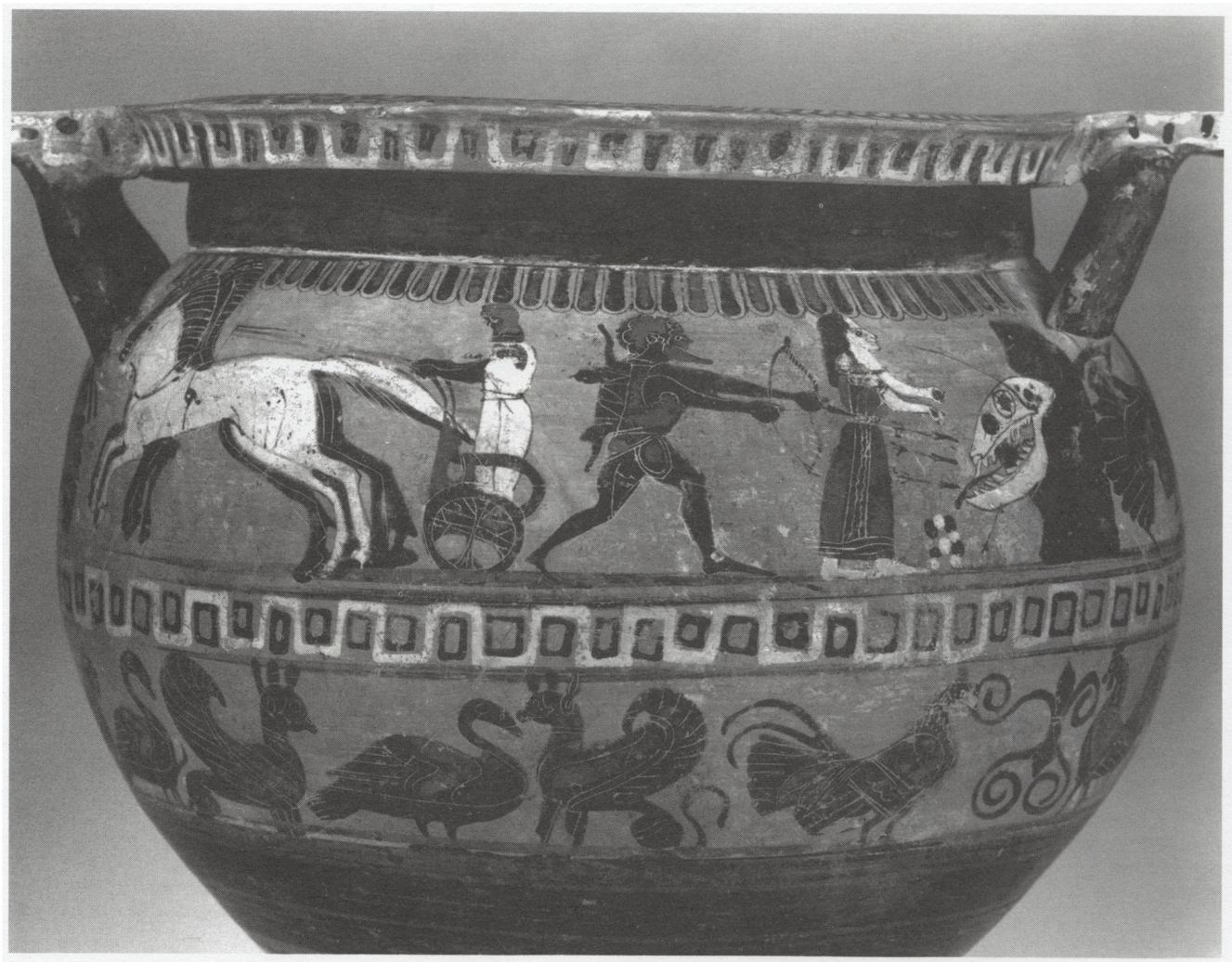

Figure 6. Side A: Charioteer driving quadriga as Herakles fires arrows at a dragon. Column Krater, Greece, Corinth, about 550 BC. Ceramic, Black Figure, H. x Diam.: 33 x 41 diam. cm (13 x 16⅛ diam. in.). Helen and Alice Colburn Fund, 63,420. Photo courtesy of Museum of Fine Arts, Boston. Reproduced with permission. ©Museum of Fine Arts, Boston. All rights reserved.

Art historians point out that the creature looks nothing like a typical sea monster in Greek art. A sea monster should have a scaly, undulating body, a crest on its back, and an upturned snout like a dog or pig. Art historian John Boardman, an expert on Greek sea monsters, singled out the poor artistic quality of this "shapeless sea monster's head" gaping "balefully from a rocky cave." One art historian said the peculiar head looked like it was simply stuck onto the black background "like a gargoyle." Another expert called the monster a "hideous white Thing." An art historian in Boston thought the Thing looked something like a Venus fly trap. The vase specialists concluded that a very unskilled artist intended to show a sea monster peeking out of a cave, but ended up drawing a weird, misshapen head with no body.

But note that the people, horses, and other details on the vase are quite skillfully drawn. Why couldn't the artist get the sea monster right? I think that if we pay close attention to the *geography* of the Homeric legend and the *date* of the vase, then the bizarre appearance of the Monster of Troy begins to make sense.

The artist painted the scene in Corinth, in about 560 BC. That was right around the time when the Spartans announced their discovery of the huge bones of the great hero Orestes (discussed above). So, the artist created this image during the height of the ancient Bone Rush, when Greeks were excited about the mysterious remains of giants and monsters that emerged from the ground all around the Aegean after earthquakes, storms, and floods.

The monster appeared on the coast of Troy after a flood. That is the same shore where the colossal bones of Ajax and Achilles suddenly appeared, described by Pausanias and Philostratus. We now know that the sediments of Troy contain rich fossil deposits of prehistoric mammals. As the sea beats against the coast, very large bones erode out of the cliffs.

Take another look at the scene on the vase. Now, instead of a badly drawn sea monster peeking out of a cave, it looks like a pretty good drawing of a monstrous skull poking out of a cliff. To check my theory, I showed photographs of the Monster of Troy vase to several paleontologists familiar with

Mediterranean fossils.

The paleontologists immediately noticed the articulated jawbone full of jagged, forward leaning teeth, the extended back of the skull, and the hollow eyesocket. The broken-off premaxilla (the upper jaw and nasal structures) is another naturalistic detail of a fossil skull. The paleontologists agreed that the size and shape of the skull suggested that a large Miocene mammal fossil may have been the model for the monster.

One candidate would be the *Samotherium*, a giant giraffe of the Miocene whose skull is about 2 feet long (horns are absent on female specimens). These giant giraffe remains are common along the coast of Turkey and in Greece.

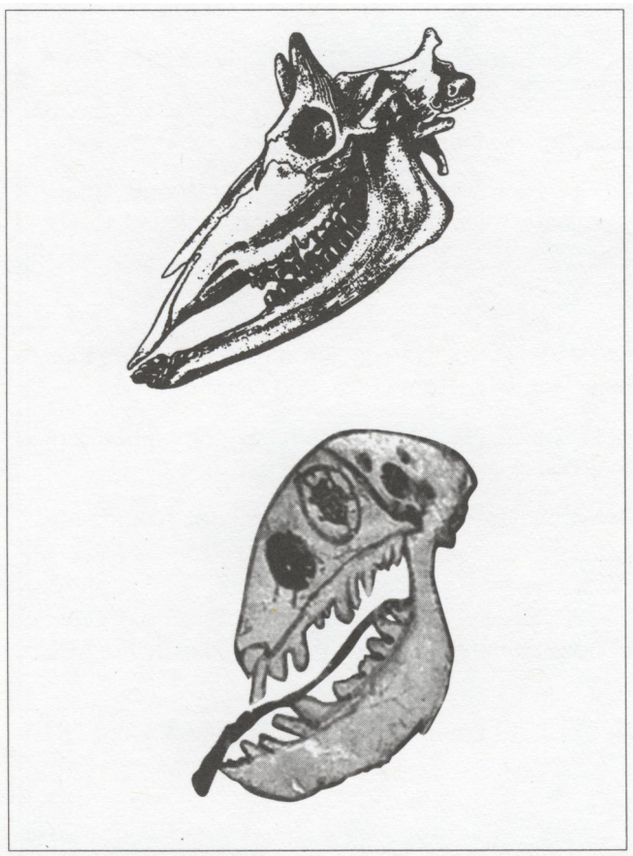

Figure 7. Top: *Samotherium* skull; bottom: the "Monster of Troy."

To make the monster skull even more frightening, the artist encircled the eye with bony plates, like those of a reptile or perhaps a Miocene ostrich skull. Then, to bring the composite monster skull to life, he added a long tongue.

If my interpretation is right, this amazing artifact, painted some 2,500 years ago, is the earliest depiction of a large animal fossil to survive from antiquity. The vase presents powerful evidence that remains of prehistoric animals influenced ancient myths about primeval monsters!

These examples of literary, archaeological, and artistic evidence show that the ancient Greeks recognized large vertebrate fossils as the remains of strange species that had lived when the earth was young. They imagined that the giant creatures perished in some cataclysm, long before present-day humans appeared. These earliest beginnings of paleontological inquiry inspired some of the most imaginative myths of classical antiquity. And the ancient accounts of giant bones, expressed in mythological language more than 2,000 years before Charles Darwin, were remarkably perceptive for a pre-scientific culture.

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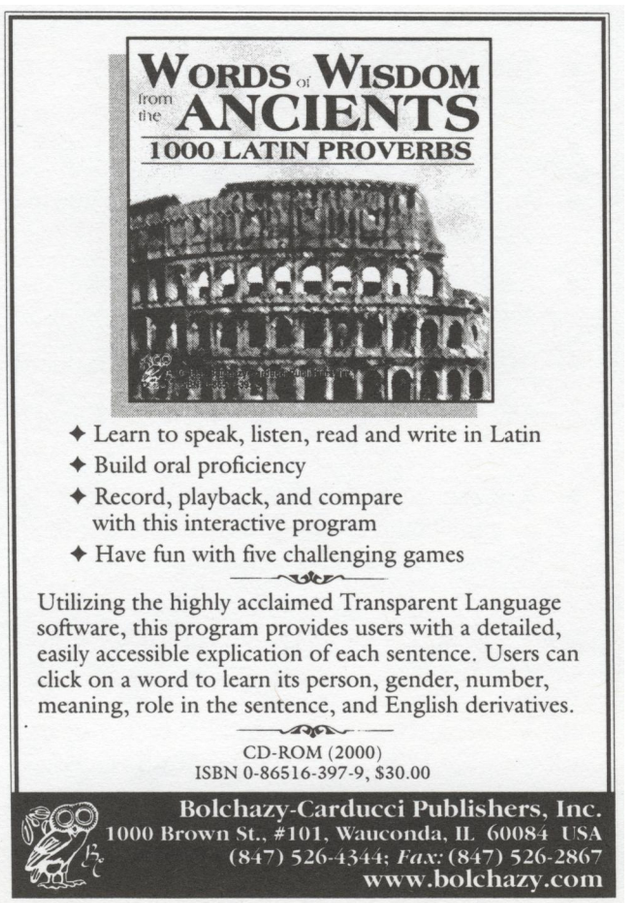
Adrienne Mayor, an independent scholar of classical folklore, investigates the historical and scientific realities embedded in Greek and Roman myths and legends. Her articles have appeared in scholarly journals and popular magazines. She is the author of The First Fossil Hunters: Paleontology in Greek and Roman Times *(Princeton Univ. Press, 2000).*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